NEW FORMS OF APHÆNOGASTER TREATÆ FOREL FROM THE SOUTHERN UNITED STATES (HYM.: FORMICIDÆ)

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In describing new forms of *Aphænogaster treatæ* Forel, we have found the original specific description (1886) too brief. It seems desirable, therefore, to give here a few additional characteristics which we have found useful in comparisons.

Worker. Length of head exclusive of mandibles 1½ times its greatest width. Scape 1⅕ times the length of the head; lobe ¼ to ⅓ the length of the scape. The long flange bordering the lobe posteriorly[1] is low and the anterior surface of the lobe is convex except that the distal portion has a small concavity between the posterior and anterior flanges. The short anterior flange arising at an acute angle from the posterior one disappears into the anterior convexity. (See Fig. 1a and b.) The base of the epinotum is twice the declivity.

Head coarsely and longitudinally rugoso-reticulate with surface between the reticulations finely punctate. Frontal area with a median longitudinal ridge. Transverse striations on the dorsal surface of the epinotum commence at the base and merge into reticulations or indistinct striations in the region between the spines. Posterior surfaces of nodes densely and irregularly punctate. Mandibles hairy.

Thorax dark ferrugineous; head and abdomen above fusco-ferrugineous.

We have been unable to procure a female of *A. treatæ*.

[1]In this paper the anterior part of the lobe is that surface which faces forward when the scape is appressed to its groove in the head; the posterior, the area concealed thus.

MALE. Epinotum ⅓ the entire thorax, slightly longer than mesonotum. Spines usually reduced to blunt protuberances.[2] Base 3 times the declivity.

Head densely punctate. Mesoscutum smooth and irregularly pitted laterally, finely punctate above, coarser behind; scutellum punctate, mesopleuræ smooth, striated near anterior border. Anterior half of base of epinotum smooth, posterior half of its base punctate; its declivity irregularly cross-striated. Nodes faintly punctate, postpetiole with a narrow band of lateral longitudinal striations.

Abdomen shining and smooth except the posterior halves of petiole and postpetiole, which are rugosely and finely reticulate. A few hairs on the head, almost none on the thorax; scattered longer hairs on the abdomen.

Dark fuscous; legs and tip of abdomen, fusco-testaceous. Mandibles, anterior edge of pronotum, tarsi, and genitalia, testaceous.

This supplementary description of the male is taken from a specimen sent us by Dr. W. S. Creighton, collected at Lookout Mt., Fort Payne, Ala., and considered by him to be typical.

Aphænogaster treatæ subsp. **pluteicornis,** new subspecies

WORKER. Length 6 mm.

Differs from the typical *treatæ* in the following details: Scape usually 1⅕ the length of the head exclusive of the mandibles. Antennal lobe is about ¼ the length of

[2]The epinotal spines of the males of *A. treatæ* are probably variable likewise, although Forel (1886) says "armé de deux épines." In the type nest of *A. pluteicornis* the spines are vestigial, being represented by low rounded protuberances. Sometimes these resemble spines broken off near the base. However, small hairs have been found on the apparently broken end, and also, an adult male was discovered still inside the untorn pupal exuvium with this same rounded projection. These facts nullify the possibility of the stumps being broken spines. Another nest of this same subspecies, collected at Ivanhoe, Texas, has long slender spines on all males. Emery (1895) in speaking of *A. treatæ* males reports: "Unter den mir vorliegenden ♂ ♂ aus D. Columbia finde ich nur eins mit langen und an der Spitze stumpfen Dornen; bei allen andern, darunter 2 aus demselben Fläschen wie das bedornte Exemplar sind mir stumpfe Beulen zu sehen. Ein leider sehr beschädigtes Originalexemplar des ♂ aus N. Jersey hat kurze, stumpfe Dörnchen."

the scape. The flange bordering it posteriorly is higher and the anterior surface of the lobe next to this flange is very concave. (See Fig. 1c & 1d.) Spines on the epinotum a little longer, varying from ⅓ to ½ the base.

Hairs even more sparse; short and coarse on head, prosternum, dorsa of thorax and petiole; finer on abdomen. A few scattered, very small hairs, suggestive of rudimentary pubescence, on the gastric dorsum in addition to the usual longer hairs.

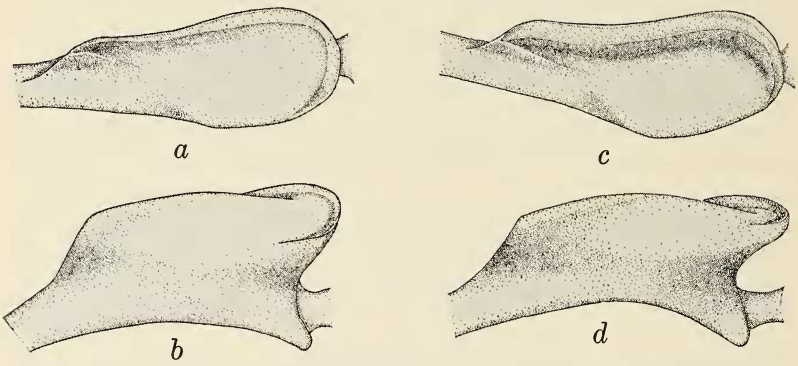

Fig. 1. *a*, left antennal lobe of *Aphœnogaster treatæ*, anterior view; *b*, lateral view of same; *c*, left antennal lobe of *Aphœnogaster pluteicornis*, var. *oklahomensis*, anterior view; *d*, lateral view of same.

Head not so coarsely rugoso-reticulate. The feeble transverse striations on the dorsum of the epinotum are almost immediately indistinguishable from reticulations. Petiole and postpetiole more faintly punctate laterally and less rugose above. Very fine reticulations of the first gastric segment extend indistinctly to the posterior edge.

Ferrugineous throughout except the abdomen which varies from ferrugino-fuscous to ferrugino-testaceous with a tendency to be lighter at the apex.

Female. Length 8 mm.

Differs from the worker in having the lobe a trifle longer in proportion to the scape. Length of head exclusive of

mandibles 1⅕ times the width. Scape shorter, 1 1-15 times the length of the head.

Sculpture coarser, gaster duller. Mesoscutum striated above longitudinally; on the mesoscutellum these ridges curve into cross striations posteriorly. Transverse striations of epinotum regular, not reticulate. Petiole rugose, reticulations becoming somewhat diagonally striated behind. Area between the reticulations punctate. Keel on the ventral surface sharp. Anterior dorsum of postpetiole reticulate, somewhat coarser and transversely striated behind. First gastric segment finely striated longitudinally at the base, merging into fine reticulations and fading out posteriorly.

Hairs relatively shorter and more abundant.

Color ferrugineous to fusco-ferrugineous, lighter specimens with darker parapsidal furrows. Metanotum, teeth of mandibles, area between ocelli, margins of thoracic sclerites, bands on the apices of gastric segments, fusco-ferrugineous; when completely retracted the lighter bands are concealed.

MALE. Length 5 mm.

Differs from the male of *A. treatæ* as follows:

Irregularly transverse ridges of the epinotal declivity fewer. Epinotal spines variable,[2] sometimes reduced to low rounded protuberances. Thorax piceous, femora and tibiae darker also.

These ants were collected by the authors in open woods (mostly *Quercus marilandica* Muench.), where the soil was a sandy loam.

Oklahoma: Poteau. VI-17-'29. Numerous workers, 1 deälated female, 3 winged females, 4 males, and a few larvæ and pupæ. On a steep slope in the soil and under dead leaves beside a stone. (Type nest.)

Oklahoma: Poteau. VII-16-'22. Small colony under a stone on a steep hillside.

Texas: Ivanhoe (Fannin County). VI-27-'29. Numerous workers, 8 deälated females; 7 winged females, 3 males, a few larvæ and pupæ. In the buried end of a small decayed branch.

Aphænogaster treatæ pluteicornis var. **oklahomensis,** new variety

WORKER. Length 5½-6 mm.

Differs from *A. treatæ pluteicornis* in the following respects: Scape 1⅕ to 1¼ the length of the head exclusive of the mandibles. Lobe ¼ the length of the antennæ and more concave next to the posterior flange, which is higher. (See Fig. 1c & 1d.) Epinotal spines about ½ the base, but variable. Epinotum more definitely striated. The first dorsal segment of the gaster more faintly reticulate. Posterior surface of the node of the postpetiole less densely punctate above. Fulvous, with head more ferrugineous, teeth of mandibles fuscous, and gaster light fulvo-fuscous.

FEMALE. Length 8 mm.

Differs from the female of *A. pluteicornis* in these characteristics: Antennæ shorter, scape 1 1/11 times the length of the head. Lobe ⅓ the scape. Posterior dorsum of the petiole more roughly reticulate, forming indefinite cross-striations. Postpetiole more rugose with a tendency to cross-striations. Fusco-ferrugineous, darker than most females of *A. pluteicornis.*

Oklahoma: Poteau, VII-16-'22. Numerous workers, 1 deälated female and a few larvæ and pupæ. Nest under a stone in the same environment as *A. pluteicornis.*

Aphænogaster treatæ pluteicornis var. **alabamensis,** new variety

WORKER. Length 5-6 mm.

Differs from *A. pluteicornis* in the following manner:

About half the workers have the scape of 1⅓ times the length of the head, the rest vary to 1¼. The anterior surface of the antennal lobe is usually convex with only a small shallow concavity near the low flange; in a few specimens it is deeper. The base of the epinotum varies from 2 to 2½ times the declivity.

The head is more coarsely reticulate. Posterior surface of the node of the postpetiole finely punctate. Sparse gastric pubescence entirely absent.

Color ferrugineous like *A. pluteicornis* or varying to ferrugino-testaceous.

FEMALE. Length 8 mm.

Like *A. pluteicornis* but with these few minor differences: Flange of the lobe a little higher; scape 1 1-11 the length of the head; color similar except that the frontal area is darker.

Alabama: Lookout Mt., Fort Payne, 12-VII-'29. Collected by Dr. W. S. Creighton.

Compared with *A. treatæ*, the head of the worker is not so coarsely reticulate, but the antennal lobe is similar except that the anterior flange is longer; the transverse striations of the epinotum usually merge sooner into reticulations which disappear between the spines, but a few specimens approach nearer *A. treatæ* in rugosity; the hairs are fewer and the color is always lighter.

This variety exhibits more variability within the nest than do our other forms of *A. treatæ*. The sculpture of the worker including the striations of the epinotum, and the shape of the antennal lobe are intermediate between *A. pluteicornis* and *A. treatæ*.

KEY TO THE FORMS OF APHAENOGASTER TREATAE

1. Lobe at the base of the antenna short, 1/5 or 1-6 the length of the scape[3] ..... 2.
   Lobe longer, 1/3 to 1/4 the length of the scape ..... 3.
2. Lobe narrow and very short, 1-6 the scape. Ferrugineous, head and abdomen slightly darker ..... *treatæ* subsp. *harnedi* W. M. Wheeler (1919).
   Lobe 1/5 the scape. Dark fuscous to piceous ..... *treatæ* var. *ashmeadi* Emery (1895)[4].
3. Lobe broadly angulate in front. Dark fuscous to piceous. *treatæ* subsp. *wheeleri* Mann (1915).
   Lobe not broadly angulate but evenly rounded ..... 4.

[3]The lobe is measured from the point where the scape begins swelling to the tip of the anterior surface, nearest the antennal insertion.

[4]Mayr (1886) first mentioned this variety but failed to name it.

4. Dark ferrugineous, head and abdomen ferrugino-fuscous above. Transverse epinotal striations extend to the spines ..... *treatæ* Forel (1886).
   Color lighter. Striations of epinotum not so extensive. Sculpture less rugose. Punctation on first gastric segment finer ..... 5.

5. Dorsum of epinotum usually reticulate, not striate. Ferrugineous, abdomen varying to ferrugino-testaceous..... *treatæ* subsp. *pluteicornis,* new subsp.
   Transverse striations present on base of epinotum..... 6.

6. Less hairy. Concavity of antennal lobe deep and flange high. Striations of epinotum very faint. Thorax light fulvous, head ferrugineous, gaster light fulvo-fuscous..... *treatæ pluteicornis* var. *oklahomensis,* new variety.
   More hairy. Concavity of antennal lobe small and flange lower. Striations of epinotum definite. Apex of postpetiole more reticulate. Coarseness of sculpture intermediate between *A. treatæ* and *A. pluteicornis.* Ferrugineous to ferrugino-testaceous ..... *treatæ pluteicornis* var. *alabamensis,* new variety.

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